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(54) **INTERACTION AND SCREEN CONTROL METHOD IN INTERACTIVE PROGRAM**

(57)Abstract:

PROBLEM TO BE SOLVED: To control interaction and image shift so that an interactive image may not affect other programs by showing data about video and shifting to an image that urges an interaction with a user when an interactive

mode is selected.

SOLUTION: A central controller 101 analyzes content of an instruction from a user inputting means 130 through an input controlling part 104 and outputs a corresponding command. On the other handa broadcast receiving part 105 receives inputted video and data through an antenna 141. A disk controlling part 106 accesses package media such as memory 102. Similarlya communication controlling part 107 accesses various information sources such as a home page on an internet 150. When a display switch command is performed by an icon display that shows the kind of related data or telop display that shows the related data together with ita home page about video is shown. Alsoin such casesvideo that is in selection is overlapped on the home page and is shown as a compacted image.

CLAIMS

[Claim(s)]

[Claim 1]In an interactive data-broadcasting program in which an image and data synchronize and carry out an offer of informationa) If a screen which reports that data has been sent with an image as the program concerned is started is displayedand b user chooses an interactive mode while displaying the notice screen concernedshifting to an interactive screen to which data relevant to an image is displayed and a dialog with a user is urged -- c -- a dialog control method displaying a screen which a program endsand which carries out purport warning before fixed time which the program concerned ends.

[Claim 2]A dialog control method according to claim 1 the information provider's being able to prepare two or more interactive screensand assigning display time of each set talk screen in said processing b according to residual time of said program in that case.

[Claim 3]A dialog control method according to claim 2 displaying a remaining number of said display time on an interactive screen in said processing b.

[Claim 4]When a user is made to choose continuation of a dialogan end of a dialogor interactive screen preservation and d user chooses continuation of a dialog in said processing cWhen display a data screen which erased an image screena user enables it to continue a dialog and e user chooses an end of a dialogA dialog control method according to any one of claims 1 to 3 returning to a screen which displays only an image after saving the contents of the interactive screen concerned at memory storagewhen it returns to a screen which displays only an image and f user chooses interactive screen preservation.
[Claim 5]A dialog control method according to claim 4 when carrying out redisplay of the contents of the saved interactive screen in said processing fwherein an image displays only a data screen which is not displayed simultaneously.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention receives and displays not only a video program but a data programand a bidirectional part number groupand relates to the broadcast receiving set in which a screen changes by a dialog with a user in the data program concerned or a bidirectional part number group. It is concerned with a dialog with the user in a data program or a bidirectional part number groupand control of a screen change also in this. In the program and advertisement in which especially an image and data interlocka dialog and a screen change are related with control so that a dialog and a screen change with a user may not affect other programsadvertising broadcastand a display.
[0002]
[Description of the Prior Art]Conventionallyin the broadcast for televisionsthe video program was a center. Howeverthe data program which broadcasts what is

called data of a charactera pictureetc. as digitization of broadcast and an advancement progress these daysThe image linkage model data program which also sets the data relevant to a video program and it broadcaststhe bidirectional part number group on condition of obtaining the response from a useretc. have come to be started as actual service. Especially in this inventionthis will be called a dialog program or an interactive program for that in which a screen changes by a dialog (interaction: interaction) with a user among these programs. In the field of broadcast [before] (for exampleJP9-46651A - 9-46656)although the term of "being interactive" had the strong meaning of "bidirection"By this inventionit is realized as "interactive" = "dialogism" and the function which feeds back the response from bidirectioni.e.a userto the purveyor-of-service side is considered to be one gestalt or one function to realize dialogism.

[0003]Nextthe control method of of the dialog and screen change in a conventional data program and interactive program is explained.

[0004]Firstthe teletext which multiplexes a character and image data to the free space of an analog terrestrial waveand transmits to it occurs. In the receiving set of this teletexta screen display of the data part is extracted and carried out from the received electric wave. Generallysince data is not necessarily connected with an imagethe display screen of data and an image detaches and displays it in many casesrespectively. Since information references are the main usesoperation by a user is also a grade which chooses a display and un-displaying of a data screen. For exampleif a user performs a data screen displayin a receiving seta screen will be divided into two and an image and data will be displayed on each. Or it is a usage pattern with common displaying an image and data on the same screen area by turns by the remote control operation by a user etc. or when the receipt of data is completedthere is also the method of display of passing it as a telop on an imagebut use any -- a user's operation is a grade which chooses the display style of a screen.

[0005]There is data-broadcasting service which embeds the script (language which described the screen change and the operating procedure) which can

interpret a computer in the same analog terrestrial free spaceand transmits to it. Since this free space is called VBI (Vertical Blanking Interval)this service will be called VBI-data broadcast here. In VBI-data broadcastsince the screen change and the operating procedure are described as a scriptcompared with a teletextthe user can perform more advanced operation. For examplewhen HTML (HyperText Markup Language) used with the WWW (World Wide Web) service on the present Internet as a script language is adoptedthe dialog and screen change about a homepage and equivalent can be realized. An image linkage model data program can also be sponsored by describing the relation of an image and data in a script.

[0006]In this VBI-data broadcastmutual display screens differ for televisions and with the service which PC (personal computer) turns. For examplein the service for televisionsif the data relevant to an image scene on display reaches the terminal sidea user will be told about that display a specific icon on the corner of an image and there is related data. If a user specifies data displayTV footage will be divided into two and an image and data will be displayed simultaneously. a user performs the dialog of referring to the data relevant to an image in a data screenor replying to quiz -- things -- ** And there is also a usage pattern which sends record of dialogs with a usersuch as a reply of quizto a center facility through networkssuch as a telephone linedepending on a service content from a receiving setfor example. As known art of this VBI-data broadcast service for televisionsJP9-46651A - 9-46656 have an "interactive teletext system" of a statement.

[0007]In the service for PCsthe screen is beforehand divided into the image display area and the data display areaif the data relevant to an image scene on display reaches the terminal sidea data display area will be updated and a user will be told about arrival of associated data. A user will perform interactive operationsuch as reference of associated datain a data display area. When PC which is a receiving set is connected to the Internetcooperation of data broadcasting and the Internet will also be possible and transmission of dialogue

recordingsuch as a reply of quizand a demand of supplementary information will be performed via the Internet in this case. The known art of this VBI-data broadcast service for PCs is detailed to "media big van ****" of the "Nikkei multimedia" (Nikkei BP) April97 items pp46-pp63.

[0008]It is almost the case which was beforehand provided with the equipment which also transmits data in the digital satellite broadcasting service opened one after another recently in addition to AV information (an image and an audio). Although program information (EPG: Electronic Program Guide) is transmitted in the present service using this data-broadcasting infrastructureData-broadcasting service of an image standalone version and image linkage type data-broadcasting service are planned by for televisions and for PCs like previous VBI-data broadcast. It is expected that the same service appears also in future ground wave digital broadcast. Also about the data-broadcasting service by this digital satellite broadcasting and ground wave digital broadcastit will be detailed in the "Nikkei multimedia" (Nikkei BP) April97 item "media big van ****."

[0009]

[Problem(s) to be Solved by the Invention]As stated also in advanceit is aimed at the interactive program in which a screen changes by a dialog with a user in this invention. Herethe example of this interactive program is explained first.

[0010]There is a program called an "informercial" as the present video program service in the coined word which united commercials with the information. Although an informercial is a so-called kind of an advertisementit is a program which provides introduction of specific goods with the information relevant to the product. Since it is broadcast at the time comparatively collected as one program unlike the usual commercialsit is effective in heightening the appealingness of goods more.

[0011]Recentlythe questionnaire relevant to a program was carried out in this informercialand the needs to use the result of that questionnaire for marketing analysis came out. It is for judgment that are easy to reflect a sponsor's intention in a program contentand can collect many samples at once for the questionnaire

collection by broadcastand it is efficient in order that a sponsor (advertiser) may buy the whole program to work.

[0012]Questionnaire collection is easily realizable if an informercial is made the composition of an interactive program. Specificallythe contents of a questionnaire are first transmitted as a data program with the image of an informercial. In a data programa user is asked about a questionnaire by the Q&A format. Generallyin order to go across the contents of a questionnaire variablya data program will comprise two or more interactive screensand a user will reply to the question provided for every each set talk screen. If a user finishes answeringdata including the reply will be transmitted to the center facility by the side of a program donor using a bidirectional infrastructure (for exampletelephone line). Since the contents of a questionnaire or not only a screen change but the reply collection process is described as a script in the data programthe user should perform only a questionnaire answer. That isit will be said that operation is easy and a burden is also light. When it sees from the program donor sidemany samples are not only collectable at oncebut by the questionnaire in paperit can reduce the indispensable questionnaire result input operationand there is a merit that it is automatable as a process which was consistent from reply collection to analysis.

[0013]The same structure is applicable to much applicationsuch as article ordering in a shopping programa test answer in an educational programand health consultation in a medical programfor example.

[0014]Nextthe point which poses a problem in an interactive program is explained based on the above-mentioned example.

[0015]Generally as for the programbroadcasting hours were decided. Since a program cuts with one channel one after another with time progress and it changesit can be urged to finish each program in the assigned broadcasting hours. In the present video programsince these broadcasting hours are managed by the broadcasting station sidethe problem in particular has not been produced. Howeversince the screen change of a data program is advanced by a dialog with

a user in an interactive programalso when a data program does not finish in broadcasting hoursit comes out. For examplein the example of the above-mentioned informercialbefore a user's questionnaire answer finishesa video program can be completed.

[0016]In this casethere are two kinds of solutionsthe method of continuing a data program as it is regardless of a video program and the method of forcing a data program in accordance with the end of a video program to terminate. Since in the case of the former a data program is continued in spite of having completed broadcasting hoursthe sponsor and right problem which have financed the program by the broadcasting station side may arise. The case where the above-mentioned informercial is broadcast in succession two or more as an example is assumed. Even if the broadcasting hours of one informercial (temporarily referred to as A) are completedsupposing a questionnaire screen continues by the receiving set sideIn the informercial (temporarily referred to as B) to which the broadcasting hours just behind that are assignedinfluence arises in a program content -- a display screen cannot be restricted or the questionnaire of the informercial B concerned cannot be started. This problem is serious in the meaning that a user cannot be surely provided with the program which the sponsor made a contract of. Since the questionnaire recovery result of the informercial B will also be affected if the same situation happens with many receiving setsa problem becomes still more serious.

[0017]For this reasonas the above-mentioned latter describedthe method of uniting a data program with broadcasting hours and forcing to terminate is used well. According to this methodthe program content of the informercial B can be kept. Howeveralso when it is difficult to end a reply in broadcasting hours depending on the contents of a questionnaire of the informercial Ait is plentifully. Since answer time will become less than the assumption by the side of a program donor if the power supply ONa channel changeetc. are especially performed in the middle of broadcasting hoursthe end of a reply in broadcasting hours will become increasingly difficult. In this casewhile receiving the mental

pressure that it must answer into broadcasting hours for a user at a questionnaireSince it will be canceled even if it has replied to a questionnaire to the middleyou are made for the right to receive the compensation of the premium etc. which are obtained as a result of a questionnaire to be waived compulsorily. The problem that the sample numbers of a questionnaire cannot fully be collected for a program donor or a sponsor as a result will arise.

[0018]The above-mentioned problem originates in a time gap arising in the data program which a screen change follows by a dialog with a user by the receiving set sideand the video program which manages broadcasting hours (that isscreen change) by the broadcasting station side. For this reasonthe same problem may occur also in other applicationsuch as article ordering in the previously quoted shopping programa test answer in an educational programand health consultation in a medical program.

[0019]Thereforethe purpose of this invention is to solve the above-mentioned problem in an interactive programand there is in providing the method of controlling a dialog and a screen change so that an interactive screen with the user in an interactive program does not affect other programs in the first place probably.

[0020]If it comes to control a dialog with a user by an interactive program by the system sidethe case where the intention by the side of a program donor does not get across to a user arisesand the convenience and profits which a user should enjoy essentially as a result may be spoiled. For this reasonin an interactive programthere are other purposes of this invention in providing the dialog and screen control method which are reflected as it becomes about the intention by the side of a program donor while controlling an interactive screen not to affect other programs.

[0021]Since the user of the interactive program by this invention is acting as an ordinary home user with the main targetsthe receiving set must be easy to operate and must be user-friendly. Thenother purposes of this invention are to provide a dialog and a screen control method intelligible for a user.

[0022]Nextthe above-mentioned problem is applied and considered to conventional technology. Firstthe teletext program is as mutually-independent as a video program. For this reasonthere are many usage patterns which display a video program and a teletext program on another screen independently mutually. There is much use which discharges data in a teletext program and is displayed on a targetand a screen change is not not much carried out by a dialog with a user. For this reasonin a teletext programan interactive screen with a user thinks that it is hard to produce the problem which has on other programs.
[0023]Nextin VBI-data broadcastthe televising time of an image linkage model data program is completedand when changing to other programsthe above-mentioned problem may arise. In an image linkage model data programthe data relevant to the image is transmitted with an image. In a receiving setin order to also display the data concerned in accordance with an imageit is necessary to adjust so that the viewing area of the data concerned may not affect the following programwhen a program changes. In presenttwo kinds of solutionsthe method of displaying data as it is regardless of the following program and the method of switching a data display area to the following program compulsorily in accordance with the end of broadcasting hoursare taken. The former is mainly adopted as a PC-oriented receiving setand the latter is mainly adopted as the television-oriented receiving set. Only fundamental service that VBI-data broadcast refers to the data relevant to [service was just started recently and / till the present] a video program is provided. For this reasonthe most primitive method that also described the control method of the screen change previously was enough. Howeverin order to realize a usage pattern with a more expensive dialog level with a usersuch as inviting a questionnaire in an interactive programit is necessary to solve the above-mentioned problem taken up by this invention.
[0024]Also in digital broadcasting (a satellite and a terrestrial wave)a situation is almost the same as VBI-data broadcastAccording to the aforementioned "Nikkei multimedia" (Nikkei BP) April97 item "media big van *****"the structure which displays a data program synchronizing with the specific scene of a video program

is proposed.Howeverfrom how a data program is displayed synchronizing with a video programif a dialog with a user becomes still more complicated in a data programwhen the broadcasting hours of a video program are completedhow an interactive screen with the user in a data program is processed will pose a problem. Howeverthe answer to this problem is not shown by conventional technology.

[0025]

[Means for Solving the Problem]In an interactive data-broadcasting program in which an image and data synchronize and carry out an offer of informationa) If a screen which reports that data has been sent with an image as the program concerned is started is displayedand b user chooses an interactive mode while displaying the notice screen concernedIt shifts to an interactive screen to which data relevant to an image is displayed and a dialog with a user is urgedc) Display a screen which a program ends and which carries out purport warning before fixed time which the program concerned endsWhen a user is made to choose continuation of a dialogan end of a dialogor interactive screen preservation and d user chooses continuation of a dialogWhen display a data screen which erased an image screena user enables it to continue a dialog and e user chooses an end of a dialogWhen it returns to a screen which displays only an image and f user chooses interactive screen preservationafter saving the contents of the interactive screen concerned at memory storageit returns to a screen which displays only an image.

[0026]

[Embodiment of the Invention]Hereafteran embodiment of the invention is described with reference to drawings. Drawing 2 expresses the system configuration figure of the target interactive information service with this invention. The system concerned consists of the information provider side subsystem 102the signal transduction media 101and the user side terminal 1 greatly. Firstbroadcasting media according to a terrestrial wavethe satellite broadcasting 103CATVetc. as the signal transduction media 101Network mediasuch as the

Internet 104and package mediasuch as CD-ROM105 and DVD (Digital Video Disc)are assumed. The information provider side subsystem 102 defines the link between mediawhile processing the various contents 110such as an image and datafor [each] transmission medias in the module 109. The link between the media said here is made accessible to the homepage on the Internet related from the image which says the thing of the reference relation between the information sent to the user side by each transmission mediafor exampleis passed by broadcasting mediaor the data on CD-ROM. For [various] transmission mediasinformation is sent out in the satellite broadcasting 103 etc. to CD-ROM105 from the package creation subsystem 108 from the internet server 107 from the broadcasting station 106 to the Internet 104respectively. It is a mechanism in which the user terminal 1 receives and refers this.

[0027]Nextdrawing 1 expresses the functional block diagram of the user terminal 1. The user terminal 1 consists of the main frame 2the display 3and the user input means 4. The main frame 2 receives at least one data 6 as well as at least one video source 5. The transmission method of an image and data and the structure of data are mentioned later.

[0028]Nowthe functional block 10 which carries out selection reception of the data relevant to an image and its image in the main frame 2It can roughly divide into the functional block 11 which synchronizes mutually and displays the image concerned and associated dataand the functional block 12 which accesses external resourcessuch as the Internet and CD-ROM. Firstin the functional block 10at least one is chosen by the image selection part 13 based on the directions from the user input means 4. Although it is the same processing as the channel selection in the usual televisionin this inventionchoosing the data relevant to an image simultaneously has the feature. For examplesupposing a user chooses the image A of the channel number 1it means that the data a and the data b which were related with the image A were chosen as it is. Thenan image is sent to the image and merge part in the functional block 11 via the video input section 14.

[0029]On the other handsaid associated data is sent to the data selection part 16

via the data input part 15. In this inventionchoosing said associated data further has the feature based on the utilization condition 17 defined beforehand. For exampleas compared with the utilization condition of said sent associated datathe data a will be chosen noting that the user considered it as a 30 years-old male and the utilization condition 17 was registered that. As a utilization conditiontwo or more kinds other than age or sexsuch as an addressother hobbiescharactercan be registered. Simultaneouslysince the identifier according to user individual is also registeredabout information to send only to a specific usera user's identifier is set as a utilization condition by the associated data side. Since the user side can also refer to only the data relevant to [truly] itself while the efficient offer of information which extracted the target user from the information provider side is realizable according to this structurethe efficiency of an information reference goes up.

[0030]Simultaneouslyregistration of the conditions about utilizing environment will specify the display condition 18 of associated data based on the conditions concerned. For exampleprocessing in which the viewing area of associated data is united with screen size etc. can be considered. When realizinga display condition is specified in condition of following the display condition of a if it is under the condition Afor every utilizing environment conditionsand the method of choosing this by the user-terminal side is assumed.

[0031]Nextin the functional block 11both relation needs to display said image and associated data so that intelligibly for a user. For this reasonin the functional block 11three kinds of displaying meansthe image display 26the composite display part 27and the data display part 28are prepared. By the image display 26it displays on the whole screen that it is simply said although the example of a screen by each displaying means is explained in detail using drawing 4 - 7 focusing on an imageand displays in accordance with an image and data in the composite display part 27and only data is expressed as the whole screen in a data display part. Each display screen changes a screen via the display switching part 29 with the directions from the user input means 4respectively.

[0032]If only the image was outputted to the display 3 by the image display 26the relevance of an image and data cannot be told to a user. Soin this inventionin order to superimpose on an image the icon and telop which show the contents for the data relevant to the specific scene of an image and to display themhaving formed the synchronous controlling part 21and an image and a merge part 22 has the feature. In particularin an image and the merge part 22the data overlay processing 24 which compounds an icon and a telop in piles is used on an image. Heresince the associated data concerned expresses what kind of thing it isan icon is used. For exampleassociated data is present information or it is by member-oriented limit information. A telop expresses the headline of associated data. It is desirable that it is what the contents understand at a glance like a newspaper big headline.

[0033]When the display condition 18 is simultaneously specified to the associated data concernedin order to edit an icon and a telop beforehand based on the conditions concernedthe data editing section 20 was also formed. For examplewhen screen size is smallsize of an icon or a telop is similarly made smallor the length of a telop is also shortened slightly. As mentioned abovea user can be told about existence of the data relevant to an image intelligibly and effectively using an icon or a telop.

[0034]In the through processing 25 in an image and the merge part 22it displays as it iswithout putting an icon and a telop on an image. It useswhen the case where there is no data relevant to an imageand the user are turning OFF the display of an icon or a telop.

[0035]Nextin the composite display part 27it displays in accordance with an image and associated data. There are the method of superimposing an image on the associated data based on the image overlay processing 23 as the method of a composite displaya method of superimposing data on the image by the data overlay processing 24a method of dividing the screen of the display 3 into an image display area and a data display areaetc. Drawing 4 - 7 explain each example of a screen. In this inventionthe feature is shown in displaying an icon

and a telop on an image in piles as well as said image display 26if associated data exists in the specific scene under graphic displayand displaying the associated data concerned on a data display areaif directions of a user's data display are inputted. The user can admire continuously the image which is continuous mediawithout being barred by data displayand there is a merit that associated data can also be simultaneously referred to on the same screen.
[0036]Nextonly associated data is displayed in the data display part 28. Under the present circumstanceswhen the display condition 18 is specifieddata is processed and edited so that the conditions concerned may be beforehand followed by the data editing section 20. In the functional block 11the data temporary storage 19 is formed and the chosen associated data from the data selection part 16 is kept temporarily. And according to the demand from each indicatorthe associated data concerned is sent out to each treating part.
[0037]If associated data is explained briefly herein this inventiona character and a picture with what is called link structure will be assumed like the homepage on the Internet as associated data. For this reasonit is exactly following operating it on a data display screeni.e.a link. Soin the functional block 12the data manipulation parts 32such as link destination specificationand the data search part 33 of searching a link destination were formed. In this inventionassuming that not only that to which associated data is sent but it is on [such as an Internet 104 and CD-ROM105 top] other transmission medias has the feature. For this reasonin a data search partdata search is requested not only from the data temporary storage 19 but from the Internet access part 34 and the CD-ROM access part 35 using the information about the accessing method of associated data. In the Internet access part 34URL (Universal Resource Locator) of the homepage on the Internet 104 is receivedthe homepage applicable to the URL concerned comes to handand it stores in the data temporary storage 19. Although processing is almost the same also about the CD-ROM access part 35since an accessing method may be different for every CD-ROM titleit is necessary to decide beforehand an access protocol with CD-ROM used by this

information service. Hereafterthis example mainly explains a homepage for representation as contents of the data relevant to an image.

[0038]Nextdrawing 3 expresses the hardware constitutions of the user terminal 1. The user terminal 1 consists of the main frame 2the display 3and the user input means 4. The hardware constitutions of the main frame 2 consist of the prime controller 111the storage parts store 112the display control part 113the input control part 114 and the broadcast receive section 116 which were connected by bus 112respectivelythe disk control section 117and the communication control part 118. A processing program and data are memorized in the storage parts store 113such as forming the data temporary storage in said drawing 1. The output to the display 3 is controlled by the display control part 114. In the input control part 115since the directions from a user are inputted from the user input means 4this is received and directions are sent to a prime controller. The command for interpreting the instruction content with a prime controllerand realizing the directions is executed. In the broadcast receive section 116the image and data which have been sent from a broadcasting station via the antenna 119 are received. The data in package mediasuch as CD-ROM105is accessed in the disk control section 117. Similarlyin the communication control part 118sources of a variety of informationsuch as a homepage on the Internet 104are accessed.

[0039]Drawing 4 - drawing 7 express transition of the display screen of the example concerning this invention. If drawing 4 is explained to an example about a screen changeby the display screen 200only the image will show it for it first. If a time stamp is started during graphic displayit will change to the display screen 201 or 203. Herea time stamp is structure which attaches the data relevant to a specific image scene and the scene concerned the said termand expresses the time from the start of the associated image scene concerned to an end fundamentally. If no directions are inputted from a user into a time stampit returns from the display screen 201 or 203 to the display screen 200.

[0040]The icon 202 which expresses the kind of associated data with the display

screen 201 is displayedand the telop 204 which shows the contents of associated data with an icon is displayed in the display screen 203. In this inventiontelling that the data relevant to an image scene exists by such an icon and a telop has the feature. In this inventionsince classification-izing or the individualized data is displayed for every userthere is the feature also in telling a user about the kind and the contents of data intelligibly using an icon or a telop. At this exampleit shall have set up a display and un-displaying of a telop by the information provider side. The mode which makes an icon and a telop the display OFF by the user side for the user who would like to enjoy an image is also formed without being interfered by an icon and the telop. Howeversince there was also data which an information provider wants to certainly transmit to a user depending on the contents of associated datathe forced-display mode of an icon or a telop was also formed.

[0041]Nextif a user directs display switching in the state of the display screen 200it will change to the display screen 205 and the very last homepage 206 or default homepage seen by then will be displayed. On the other handif a user directs display switching in the state of the display screen 201 or 203it will change to the display screen 213 and the homepage 214 relevant to an image will be displayed. Thuswhen display switching is directed while displaying an icon and a telopthe feature of this invention is shown in displaying the homepage relevant to the image scene concerned.

[0042]In the display screens 205 and 213the contraction image 207 of the image under present selection is displayed in piles on a homepage. Thuswhile a user looks at an image continuouslywithout being interfered by data displaythe place which can also refer to associated data simultaneously has the feature of this invention.

[0043]The contraction image 207 usually has the display screen 200 and equivalent function of an image. For this reasonin the display screen 205if a time stamp is startedit will change to the display screen 209 and the telop 211 and the icon 212 will be displayed on the contraction image 210. In this stateif a user

directs display switchingit will change to the display screen 213 and the homepage in sync with an image will be displayed. Thussince a user can be told about the new data relevant to an image being during the simultaneous display of an image and associated datathe user can refer to the associated data concerned immediately.

[0044]Nextif display switching is again directed in the state of the display screen 205it will change to the display screen 215the contraction image 207 will be eliminated from a screenand only a homepage present on display will be displayed. The homepage 219 in sync with an image is displayed at the same time it will change to the display screen 218 and will eliminate the contraction image 210if similarly display switching is directed in the state of the display screen 209. This display mode is suitable for said image and the composite display mode of a homepage to see a homepage conversselywithout being interfered by the image. The menu 208 performs operation of a homepage. If display switching is directed againit will return to the display screen 200 which displays only an image.

[0045]The item of "the redisplay of an icon or a telop by which autosave was carried out" is provided in said menu. That iswhen autosave of the list of the icons and telops which the user has so far seen is carried out and there are directions from a userthis is changed into the form (that isHTML:Hypertext Markup Language form) of a homepageand a user is shown. For exampleif directions are inputted that in the display screen 215it will change to the display screen 217. In the display screen 217the list display of the icon and telop by which autosave was carried out until now is carried out. By this inventionthe function concerned is provided supposing there being needs to overlook associated data just because a user is absorbed in an imageor to see once again later. If all of an icon or a telop were savedhowever there may be the storage parts store 113since it is insufficienta priority is provided in associated data and it is made the structure eliminated from data with a low priority so that what is not needed suitably can be eliminated. For examplecost will be eliminated by the

cheap order supposing it defines this priority according to the cost concerning an offer of information.

[0046]As mentioned abovealthough the screen change was explained using drawing 4to a display screenit is large and it turns out that there are three kindsthe display mode of only an imagean image and the composite display mode of a homepageand the display mode of only a homepage. In drawing 4it has changed in the order of returning to graphic display modecomposite display modea homepage display modeand graphic display mode. On the other handanother example of an operation screen of this invention was expressed with drawing 5and it has changed in order of graphic display modea homepage display modeand composite display mode. It is a screen change suitable for the example of use which looks at a homepage mainly. Similarlyalthough drawing 6 also expresses another example of an operation screen of this inventioncomposite display mode does not exist in this example of a screen. In order to make an image and a homepage compound and to displaythe part cost also startsbut in operation by drawing 6cost can be pressed down low.

[0047]As composite display mode of an image and dataas shown in drawing 7there are some other examples of an operation screen. For exampleat drawing 7 (a)Screen 230 is divided into twoone side is made into the image display area 231another side is made into the homepage viewing area 232and existence of a homepage related by the image side is told by the icon 234 or the telop 233. At this timea user's directions of a screen change will display the homepage 235 in sync with an image on the homepage viewing area 232.

[0048]Screen 240 is divided into the one homepage viewing area 241 and the three image display areas 242243and 244 in drawing 7 (b). A user is notified by the icon 245 or the telop 246when an image is chosen in an image display areasrespectively and the data relevant to the image concerned exists. By the indicating input of display switchingthe homepage in sync with the image B can be displayed.

[0049]In drawing 7 (c)it is a display example supposing the case where there is

two or more data relevant to a specific image scene. The title of related dataetc. are displayed as the list 252 of associated data noting that the present image 251 is displayed. If a user chooses associated data from this listthe applicable homepage 253 will be displayed. As the method of presentation in case there is two or more data relevant to a specific image sceneOtherwise in the display screen 201 or 203 of drawing 4the method of presentation that the time sharing of the display time of an icon or a telop can be carried out between each associated dataor the icon and telop of associated data can all be stood in a line on a screen is considered.

[0050]In drawing 4 -7since existence of related data is made to know by the userit has been premised on a user choosing and displaying the data concerned. If an image and associated data can be seen on the same screen and the time stamp of an image will change like the display screen 209 of drawing 4or each display screen of drawing 7the display of associated data and the usage pattern of changing automatically will be considered.

[0051]Nextdrawing 9 expresses the operation remote control 260 which is an example of the user input means in this invention. It has the power button 261the channel switching button 262the volume change button 264the channel direct switching button group 263etc. like the usual television remote control. In this inventionit had the display switching button 265 and the homepage display button 266 in the operation remote control 260. In a display switching buttonthe change state by display switching is managed in display screen transition of drawing 4. That isa user changes between each display screen by pushing a display switching button. The transition to the display screen 213 from the display screen 209 and the transition to the display screen 218 from the display screen 201 or 203 are based on the homepage display button 266 in drawing 4.

[0052]In this examplein order that processing of specifying a link destination by a homepage may be neededthe cross keys 267268269and 270 and the determination button 271 which carry out a cursor advance vertically and horizontally to cursor advances are prepared. In this invention it not only

specifies the link destination in a homepage by the cross key concernedbutWhen there is two or more data relevant to a specific image scenefor example each is displayed in a list like drawing 7 (c)using the cross key concerned for choosing from this inside the associated data which a user wants to see has the feature.

[0053]Nextthe image in a terrestrial wave and the structure of the simultaneous transmission of data are expressed with drawing 10. If it says roughlyin the terrestrial wavehave usually sent the image every video frame 280but. There is the field 281 called VBI (Vertical BlankingInterval) which takes a vertical synchronization in each inter-frame oneand using a part vacant in this field recently for data broadcasting is permitted. It is the structure which embeds the data constellation 282 to the field 281 concerned by the broadcasting station sideand takes this out by the user-terminal side.

[0054]The structure of data broadcasting in digital satellite broadcasting is expressed with drawing 11. At the usual analog satellite broadcastingalthough one channel was sent using one transponder of a satelliteby digital satellite broadcastingthe image of the No. 4 grouping per one transponder can be sent using image compression art or data redundancy technics. Simultaneouslysince some free space is also madedata will be sent to the user-terminal side using this portion. Nowthe program guide etc. are sent using this field.

[0055]Nextdrawing 12 expresses the data model of the associated data in this invention. The data 290 holds the utilization condition 291 which specified the user who can refer to the data concerned. It also has the time stamp 293 so that the associated image scene 292 can be specified simultaneously. In order to make a user know existence of associated datathe icon 294 and the telop 295 for superimposing and displaying on an image are held. Simultaneouslythe accessing method to data content 296 itself or data substance is also held.

[0056]As mentioned abovewhen this is materialized as a data structureit comes to be shown in drawing 13. That iseach data is managed by Id number and the picture showing the image Ida utilization conditionthe start time of a time stampfinish timecontinuation timeand an iconthe character string displayed as a

telopand a data content are heldrespectively. It is an identifier of a program image in the image Idfor examplea G code etc. are used. The image scene with which the data concerned was related as the image Id concerned and time stamp start timeand finish time are also can be specified. The attribute value is set up for every attribute beforehand decided as a utilization condition. Or the user's identifier is stored in this field if it is the individualized data. About a data contentthe data concerned may be in the homepage on the Internetor CD-ROM. In this casethe accessing method to the data concerned is stored in this field.

[0057]Nextthe image and data display method in this inventionand the flow of processing of a device are explained using drawing 14 - the PAD diagram of 18.

[0058]Drawing 14 expresses the process flow of the main program 300 in an imagea data display methodand a device. Firstin Step 301it detects that the user pushed the power button 261 and turned on the switch with the operation remote control 260. Nextthe channel at the time of the switch OFF is expressed as Step 302 last time. Processing here is later mentioned for detailsalthough it corresponds to processing by the image display 26. Nextin Step 303processing of Step 304 and Step 305 is repeated until it becomes the switch OFF. In the step 304 concernedthe button of the operation remote control 260 which the user chose is detectedand processing according to each button is performed at the step 305 concerned. When the display switching button 265 is chosenprocessing 306 in a display switching part is performed. Nextwhen the homepage display button 266 is chosenhomepage display processing 307 is performed. In drawing 4this homepage display processing shifts to data display modewhen an icon and a telop tell existence of associated data in graphic display modeand it displays the data in sync with an image. When similarly it is in composite display modea telop and an icon flow all over a contraction image screen and existence of associated data is made to know by the usersimilarly a display is changed to the homepage in sync with an image with composite display mode. Nextwhen the channel button 262 or the channel direct selection button group 263 is chosenprocessing 308 in the image selection part 13 is performed. Unlike the

channel change of the usual televisionthe place which is also performing the entry-of-data change relevant to an image has the feature of this invention. Nexta data manipulation button means the cross key of the buttons 267-271and when this is chosenprocessing 309 in a data manipulation part is performed. For examplethere are processing etc. which are called specification of the link destination on a homepage. Nextif the power button 261 is chosenthe program 300 will detect the switch OFF and will escape from the loop 303. Subsequentlythe channel at the time of the switch OFF is recordedand when switch-on is carried out nextit enables it to display the program concerned immediately in Step 311. And a program is ended at Step 312. In additionalthough operation of volume control etc. can be consideredfor examplesince it separates from the main point of this inventionit omits.

[0059]Nextdrawing 15 expresses the process flow 306 in the display switching part 29. Firsta display mode at present is detected in Step 321. In this exampleas shown in drawing 4graphic display modean image and a merge display modeand three kinds of display modes in data display mode exist. At Step 322when the present display mode suits data display modeprocessing 302 in the image display 26 is performedand it shifts to graphic display mode. When graphic display mode is suitedprocessing 323 in the composite display part 27 is performedand it shifts to composite display mode. When composite display mode is suitedprocessing 324 in the data display part 28 is performedand it shifts to the data display mode 324. Finallythe processing 306 is ended at Step 325. Herethe processing 324 of the data display part in this example turns into processing of a homepage display. In the processing 323 in the composite display part 27display preparations of the homepage relevant to the image scene concerned are made with the rear face of an image in the case of screen switching. Herewhen associated data does not existthe display preparations of the homepage seen at the end or the default homepage are made. After the end of preparationa data display area will be shown to a user one by one at the same time it reduces an image display area one by one. The reason for using animationsuch as reducing

an image display area one by one hereis for preventing making it sensed that it is unclear for a usersince an image and data display carving occurred momentarily.
[0060]Nextdrawing 16 expresses the process flow 302 in the image display 26. Herethe method in drawing 10 is considered as an image and structure of the simultaneous transmission of data. Since data is stored for every frame of an imagethe structure which takes out data per frame is needed. Soin Step 330Steps 331-344 are repeated for every (every [Here] one-frame unit) constant period.
[0061]Firstin Step 331an one-frame image is inputted in a video input section. Nextthe data embedded inter-frame is extracted in Step 332. Heresince it thinks also when data is not embeddedat Step 333it distinguishes whether there is any data andin with dataSteps 334-338 are performed. In Step 334it is equivalent to processing of a data input part of 15and data is extracted and decoded. Nextin Step 335it is equivalent to processing by the data selection part 16and a registered utilization condition and the utilization condition in data are tested by comparison. Subsequentlywhen data is saved at Step 337 in the temporary storage 19 when a utilization condition agreesand it does not agree at Step 336it throws away without saving the data concerned as it is at Step 338. Step 335 also prescribes the display condition of the data of an icon sizethe font size of a character stringetc. based on the conditions of utilizing environmentsuch as screen size. Heresince there is not so much quantity of the data received per frameemployment of dividing and sending data is also considered. In this casethe processing which compounds the data divided for every segment and is used as the same data after the data storage processing 337 is needed.
[0062]Nextit is equivalent to the processing in the synchronous controlling part 21and the data which suits in the present time zone in the program displayed now is searched with Step 339. Since Id of an image and a time stamp are beforehand specified if the data structure of drawing 13 is seenthe image Id and current time present on display with these will be compared. In Step 340it divideswhen there is nothing with the case where there is agreeing dataand

Steps 341-342 and Step 343 are performedrespectively. Firstin Step 341since two or more data may be chosen simultaneouslythe processing which cancels such competition is needed. After a conflict resolution indicates an icon and the telop by overlay on an image at Step 342. The details of each processing are mentioned later. Thenthe displayed icontelopor display priority records in accordance with the icon and telop which were not able to be displayed low. This is changed into a homepage according to the demand from a userand the accessible state is prepared always. In Step 343since there was no applicable datait carries out through [of the image] to a display as it is. The image or the image as it is which compounded the icon and the telop is expressed as Step 344 per frame. Although processing of Steps 339-343 had to be repeated for every constant period of a certain and there was not necessarily necessity of performing processing for every frameit embedded into the loop 330 of an one-frame unit on account of explanation. When it changes to data display mode or becomes the switch OFFprocessing is ended at Step 345.

[0063]Nextdrawing 17 expresses the process flow of the conflict resolution processing 341. In Step 350it is investigated whether there is any other data related with the same time zone. Herethe case where two or more data is assigned in the same time zone is called competition. When a list of associated data can be displayed by list form like drawing 7 (c)you may display as it isbut to display the icon and telop which show the contents of each associated data like drawing 4it is necessary to decide turndisplay timeetc. to display. Thenit detects whether there is any competition at Step 351if there is nothingthe processing concerned will be ended as it isbut (Step 352) when there is competitionthe display priority of data is decidedand scheduling is recarried out so that an icon and a telop may be displayed on order with the high priority concerned. Finally the processing 341 is ended at Step 354.

[0064]Nextdrawing 18 expresses the process flow of the overlay display processing 342. In Step 360the icon by a userthe display mode of a telopand the forced-display mode of an icon and a telop by an information provider are

detected. If forced-display mode is ON even if the display mode of an icon and a telop serves as OFFon an imagedata and a telop will be piled up compulsorily and will be displayed. For this reasonin order not to perform overlay processingit is necessary to turn OFF the display mode of an icon and a telop andand the forced-display mode by an information provider also needs to be OFF. In Step 362an icon and a telop are individualized for every user based on the previously fixed display condition. Nextin with a telopin Steps 363 and 364processing 364 which superimposes a telop on an image is performed. Similarlyin with an iconprocessing 366 which superimposes an icon on an image is performed at Step 365. About the method of the processing which superimposes a character string and a picture on an imageit applies to the processing which piles up and displays data on the usual image.

[0065]As mentioned abovealthough one example of this invention has been described focusing on broadcasting mediathis invention can be used also as the image and a data display method which used package media and a communication medium.

[0066]

[Effect of the Invention]When according to this invention display the screen which a program ends and which carries out purport warning before the fixed time which the broadcasting hours of an interactive program enda user is made to choose continuation of a dialogthe end of a dialogor interactive screen preservation and a user chooses the end of a dialogor interactive screen preservationit returns to the screen which displays only an image. Also when a user chooses nothing but broadcasting hours are completedit returns to the screen which displays only an image automatically. An interactive screen with a user can be controlled now by the above so that an interactive program does not affect other programs.

[0067]When a user chooses continuation of a dialogan image screen is erasedonly a data screen is displayed and a user enables it to continue a dialog according to this invention. Also when similarly a user chooses interactive screen

preservation and continues a dialog at other timean image screen is erased and only a data screen is displayed. By the aboveeven if the broadcasting hours of an interactive program are completeda program donor's intention can be conveyed to a user in a data screenand the convenience and profits which a user should enjoy essentially as a result can be maintained.

[0068]According to this inventionwhen an interactive program is startedthe icon and telop which notify the program content are displayed on a screenand a user is made to shift to an interactive mode easily. The broadcasting hours of a program are displayed and it is made to be easy to grasp the time left behind to that a user continues a dialog in the interactive screen. By the abovethe user can master a receiving set easily and can go ahead with the dialog in an interactive program.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The explanatory view which expresses a dialog with a userand the change state of a screen in the interactive program concerning one example of this invention.

[Drawing 2]The explanatory view showing the whole interactive broadcast service system configuration concerning one example of this invention.

[Drawing 3]The explanatory view showing the hardware constitutions of the interactive broadcast receiving set concerning one example of this invention.

[Drawing 4]The explanatory view showing the data flow between each component of the interactive broadcast receiving set concerning one example of this invention.

[Drawing 5]The explanatory view showing the appearance of the remote control for user operation of the interactive broadcast receiving set concerning one example of this invention.

[Drawing 6]The explanatory view which expresses notionally the structure of the simultaneous transmission of the video program in an analog terrestrial waveand a data program.
[Drawing 7]The explanatory view which expresses notionally the structure of the simultaneous transmission of the video program in digital satellite broadcastingand a data program.
[Drawing 8]The explanatory view which expresses a screen change and an operation history in the interactive program concerning one example of this invention.
[Drawing 9]The explanatory view which expresses an another screen change and operation history in the interactive program concerning one example of this invention.
[Drawing 10]The explanatory view which expresses an another screen change and operation history in the interactive program concerning one example of this invention.
[Drawing 11]The explanatory view showing the image screen of the interactive program concerning one example of this invention.
[Drawing 12]The explanatory view showing the notice screen of the interactive program concerning one example of this invention.
[Drawing 13]The explanatory view showing the interactive screen of the interactive program concerning one example of this invention.
[Drawing 14]The explanatory view showing another interactive screen of the interactive program concerning one example of this invention.
[Drawing 15]The explanatory view showing another interactive screen of the interactive program concerning one example of this invention.
[Drawing 16]The explanatory view showing another interactive screen of the interactive program concerning one example of this invention.
[Drawing 17]The explanatory view showing the warning screen of the interactive program concerning one example of this invention.
[Drawing 18]The explanatory view showing the data screen of the interactive

program concerning one example of this invention.
[Drawing 19]The explanatory view showing the composition of the notice screen of the interactive program concerning one example of this invention.
[Drawing 20]The explanatory view showing the composition of the interactive screen of the interactive program concerning one example of this invention.
[Drawing 21]The explanatory view showing the program information of the interactive program concerning one example of this invention.
[Drawing 22]The explanatory view showing the composition of the interactive program concerning one example of this invention.
[Drawing 23]The explanatory view showing the data model of the interactive program concerning one example of this invention.
[Drawing 24]The explanatory view showing the data structure of the interactive program concerning one example of this invention.
[Drawing 25]The explanatory view showing the process flow of the dialog and screen control in the image screen of the interactive program concerning one example of this invention.
[Drawing 26]The explanatory view showing the process flow of the dialog and screen control in the notice screen of the interactive program concerning one example of this invention.
[Drawing 27]The explanatory view showing the process flow of the dialog and screen control in the interactive screen of the interactive program concerning one example of this invention.
[Drawing 28]The explanatory view showing the process flow of the dialog and screen control in the warning screen of the interactive program concerning one example of this invention.
[Drawing 29]The explanatory view showing the process flow of the dialog and screen control in the data screen of the interactive program concerning one example of this invention.
[Description of Notations]
100 -- An interactive broadcast receiving set101 -- A prime controller102 --

Memory103 [-- Disk control section] -- A display control part104 -- An input control part105 -- A broadcast receive section106 107 [-- Tuner] -- A communication control part108 -- An external storage109 -- A bus110 111 [-- A data decryption machine115 / -- Composition / output machine120 / -- A display130 / -- A user input means141 / -- Antenna] -- A system multiplex decoder112 -- A video decoder113 -- An audio decoder114